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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	DeAddio et al.	Examiner:	D. Felten
Title:	Object Oriented System for Managing Complex Financial Instruments	Serial No.:	09/127,341
Filed:	July 31, 1998	Group Art Unit:	3624
Ref. No.:	11021.0001		

DECLARATION OF JERROLD COHEN PURSUANT TO 37 C.F.R. SECTION 132

I, JERROLD COHEN, make the following declaration in support of the above-referenced application:

1. I am a Vice President of Applicant, now known as J.P. Morgan Chase & Co. I have been employed by Applicant since 1991. I am currently involved in application development in connection with Applicant's systems for managing financial derivatives, which operates internally as the "Kapital" project. I have been involved in the Kapital project since approximately October 1997. I have considerable experience in using object oriented systems to model financial instruments, including the full range of instruments encountered in financial practice today, and with related data processing issues. I am not an inventor of any of the subject matter claimed in the present application.

2. Applicant has had an evolving series of systems, under the name "Kapital," for managing Applicant's portfolio of derivative financial instruments. The Kapital project dates from the early 1990s. The present invention concerns an object model, internally called "BOMIOM," that was introduced in the late 1990s and which became the object model used

within Kapital for representing and processing financial instruments, replacing models that had been used earlier.

3. The named inventors in this case, Michael DeAddio and Axel Kramer, are no longer working for Applicant (and have each been gone for two years or more). Mr. DeAddio had served applicant as a Vice President, while Mr. Kramer had served as an independent contractor (consultant). The inventors are no longer accessible to be interviewed by Applicant.

4. The attorneys representing the Applicant in this case asked me review an article in Sloan Management Review of Winter 1995 by Richard Pawson, et al. ("Pawson") which describes in business terms the Kapital system as it existed and was used by Applicant at about the time the article was written (presumably in 1994). The attorneys asked me to relate what I could determine about (i) when the subject matter described in the present application was introduced into a version of the Kapital system that was used commercially by Applicant, and (ii) the characteristics of the Kapital system as used by Applicant prior to July 31, 1997 (the date that was 12 months prior to the filing date of the present application). In connection with my review, the attorneys also asked me to review the specification and claims in the present application, and related papers, including portions of office actions and responses thereto.

5. I have no personal knowledge as to when the subject matter described in the present application was introduced into a version of the Kapital system that was used commercially by Applicant. Based on what I have read in Applicant's files, and my conversations with other employees and representatives of Applicant, I believe that said subject matter was not put into commercial use by Applicant until after the critical date.

6. The Pawson article itself does not disclose or suggest the subject matter claimed in claims 11-15 (or any of the other claims originally in this application). However, it does provide information, which I otherwise know to be true, that Applicant had an object oriented system called Kapital in use during the mid-1990s which performed a variety of functions with respect to financial derivatives as generally discussed in Pawson. The Examiner has requested

information regarding the characteristics of the Kapital system as in use by Applicant during the period referenced by Pawson.

7. The Kapital system was implemented with "object oriented" computer languages from a very early stage of its development. In December 1993 an internal paper was prepared, entitled "Kapital Object Model" (the "1993 Paper"), which documented the "object model" employed in the then current implementation of Kapital. A copy of the 1993 Paper is attached to the Information Disclosure Statement being submitted herewith. To my knowledge, the 1993 Paper was never published.

8. I believe that the object model described in the 1993 Paper substantially represents the object model in use in Kapital at or about the time the Pawson article was written.

9. The system described in the 1993 Paper represented financial instruments as objects and "related classes" (see 1993 Paper at p. 2). The class corresponding to trades and financial instruments that were externally visible was called "JPPublicFinancialObject." The internal representation of these trades and instruments was reflected in objects derived from the class "JPPrivateFinancialObject" (1993 Paper, p. 3). The latter included "stream data" – internal deal information for structures which have more than one "value event" associated with them (1993 Paper, p. 4). The "related classes" included "event" classes which were related to, but not derived from, the financial object classes. There were also separate classes that described the "financial environment" and the available "curves" that could be used to perform calculations. In addition, there were "Calculator objects" that performed processing, such as pricing ("Pricer objects"), on the financial instrument objects (see 1993 Paper, p. 34). In order to use a Pricer object, it was necessary to specify a number of parameters, including (1) the financial object to be priced, (2) the financial environment, and (3) the "curves" to use (1993 Paper, pp. 34-35). In order to facilitate this processing, there was a special class in Kapital called "JPPricerHandler" which maintained a dictionary of all public financial object classes together with the name of the pricer which would best be able to value this object (p. 35, sec. 7.2.1).

10. In BOMIOM, the inventors introduced a declarative specification language for modeling financial instruments. The expressions of this language were factored into the components (sometimes referred to as "financial events" or "micro structure" of the instrument). This was done in such a manner that all components would be "valuation independent" – capable of being valued in different ways by different processing methods that might be applied later. This was important, because the desired valuation methods to be used in connection with financial instruments has been subject to considerable change, and there was an advantage in being able to implement a change by changing the processors, as opposed to changing all of the financial instrument objects that had been constructed. BOMIOM also involved an intermediate processing step whereby the events would be "extracted" and put into a "macro structure" which was an explicit part of the instrument, which represented the events involved in the instrument and the relationships among those events. Finally, BOMIOM defined processor objects which used a method known as "double dispatch" in order to traverse the instrument's macro structure and determine which processing method is chosen for a given financial event within a given processor. This allowed the processor to select the appropriate action for each financial event without predetermined knowledge of the overall referential structure of the financial event structure of the instrument.

11. The system described in the 1993 Paper differs from BOMIOM in that (among other things) (a) there is no "specification language" described in the 1993 Paper for creating and representing the instruments, (b) there is no "macro structure" generated, as in BOMIOM, as a separate part of the instrument, (c) there is no specific teaching that the processing object "traverses" the macro structure, (d) the 1993 Paper does not teach eliminating dependencies between the operations performed to process one financial event from those used to process the others, and (e) whereas in the 1993 Paper the Pricer object has to be selected to best match the type of instrument it is processing, in BOMIOM this is not necessary, and in fact there is a requirement that the processing object have no predetermined knowledge of the overall referential financial event structure of the financial instrument being processed.

12. Despite these differences, I believe it is sufficiently clear that the "Pricer objects" in the 1993 Paper could access all of the relevant data that it needed from the financial instrument object in order to perform the desired calculation, through a process that might be considered "traversal." Accordingly, I have recommended canceling claims 11-16 of the application in light of the 1993 Paper in light of references such as Gamma, et al., Design Patterns (Addison-Wesley, 1995).

13. However, I do not believe the 1993 Paper teaches that all financial instrument components should be made "valuation independent" as set forth in the present application. I believe this distinction may reasonably be used to support the patentability of claims that explicitly recite the features of valuation independence as necessary elements of the claim. In particular, I do not believe it would have been obvious to one of ordinary skill in the art at the time that DeAddio and Kramer worked on the present invention to rework the object model described in the 1993 Paper so as to make its elements consistently valuation independent. Without reworking that object model in such a manner, it would not have been practical to attempt to implement double dispatch as also recited in the amended claims.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Dated: January 24, 2003

JERROLD COHEN